ENVIRONMENTAL ASSESSMENT
FONSI
SECTION 404 (b)(1) EVALUATION
MAINTENANCE DREDGING

CHATHAM (STAGE) HARBOR

CHATHAM, MASSACHUSETTS

DECEMBER 1983

US Army Corps of Engineers
New England Division

ENVIRONMENTAL ASSESSMENT

and

SECTION 404(b)(1) EVALUATION

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Introduction and Project History

The New England Division of the U.S. Army Corps of Engineers has examined environmental values as part of the planning and development of the proposed plan in compliance with the National Environmental Policy Act of 1969 and appropriate environmental laws, regulations and executive orders. This report provides an assessment of the environmental impacts and alternatives considered and contains other applicable data to Section 404 Evaluation requirements.

The Federal navigation project at Chatham (Stage) Harbor consists of an entrance channel 150 feet wide and 10-feet deep below mean low water, extending from Chatham Roads through Harding Beach for a distance of approximately 2.1 miles; a 2,500 foot long sand dike with a top elevation of 13 feet above mean low water and extending across the natural harbor mouth from Harding Beach point to Morris Island; and a stone jetty 500 feet long on the west side of the Harding Beach entrance channel. (Figure 1). A 1,500 foot long timber pile jetty located seaward of the sand dike was removed in 1981.

The project was authorized by the 1945 River and Harbor Act, and amended by 1962 and 1964 Design Memoranda for major maintenance and improvement work. The project was completed in 1965 with a subsequent extension of the west jetty to 500 feet in 1967.

Shoaling in the Federal channel is a continuous problem. The lower and upper portions of the channel were dredged from February to May 1970 by a hydraulic dredge which removed 32,000 cubic yards of material and deposited it on Harding Beach, west of the entrance channel and jetty. There was no record of an environmental report prepared for that project.

A Draft and Final Environmental Impact Statement were prepared in 1972 for maintenance dredging of approximately 20,000 cubic yards of material in the lower portion of the channel. A sidecast dredge was used, with shoal material casted along the periphery of the channel. The 1972 impact statements discussed impacts associated with sidecast dredging during 1973 and also subsequent sidecast dredging operations that were performed in 1974 (20,630 c.y.) and 1977 (7,020 c.y.). The sediment was composed primarily of medium to fine sand mixed with some fragments of shells and gravel. Circulation of the Draft EIS in 1972 did not result in significant comments on the project - all were in favor of the proposed work, and were satisfied that there would be minimal impacts on the marine ecosystem of the harbor. Physical and chemical analyses were performed on sediment samples, and all values were within EPA's criteria. (Final EIS, Chatham (Stage) Harbor, CE, NED, 1972).

Maintenance dredging was again performed in 1978 when approximately 52,000 cubic yards of sand was removed by a hydraulic dredge and deposited on the upland portion of Harding Beach east of the entrance channel (Harding Beach Point). An Environmental Assessment was prepared for this

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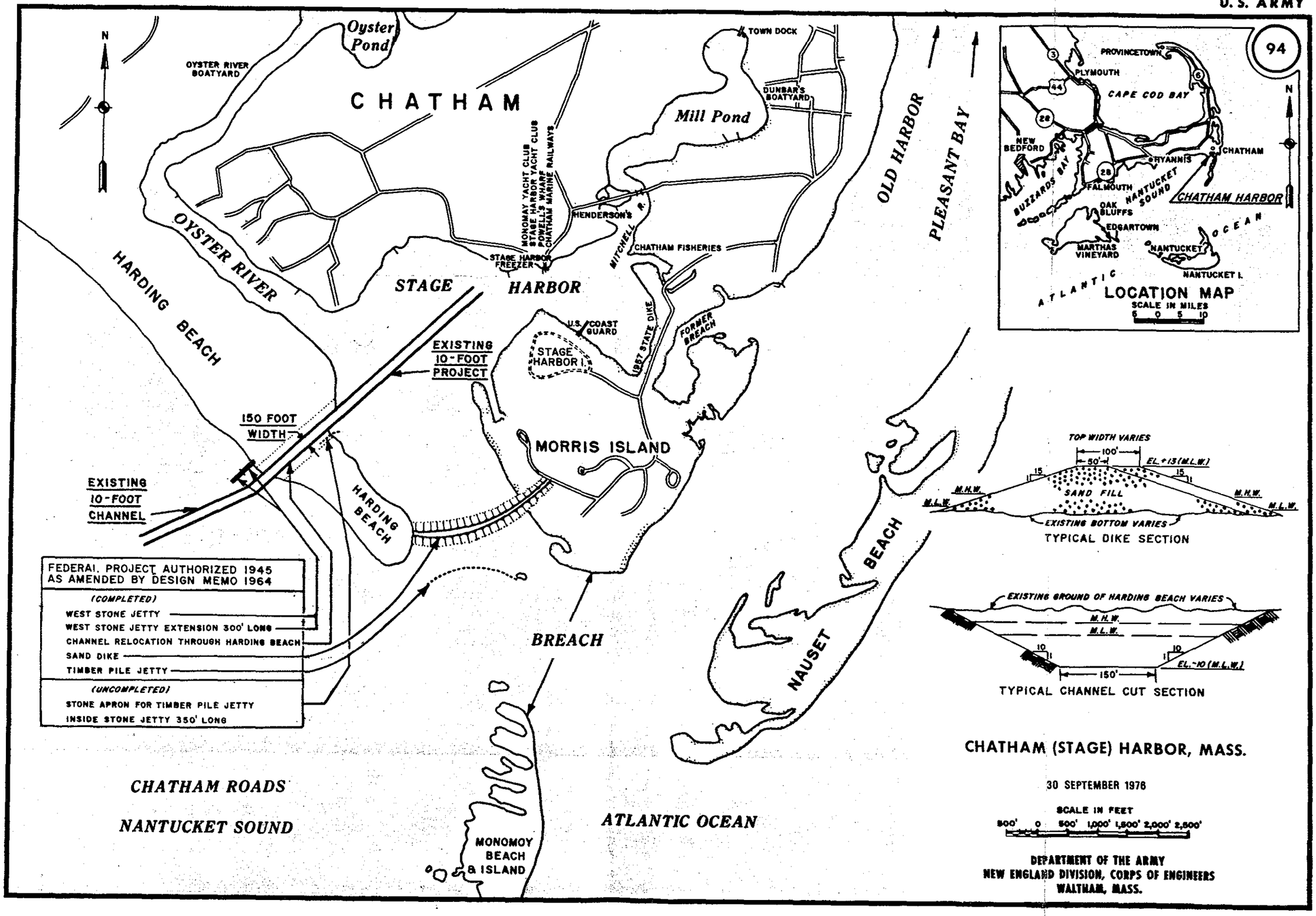


CHATHAM (STAGE) HARBOR, MASS.

30 SEPTEMBER 1976

SCALE IN FEET

800' 0 500' 1,000' 1,500' 2,000' 2,500'

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS.

FIGURE 1

work. Bulk physical and chemical analyses were performed in 1976, and the results of that testing were presented in the assessment. The analysis of results presented in the assessment indicated that there would be no introduction of contaminants to the disposal site.

Hydraulic dredging was again proposed in 1981. However, the work was not undertaken as funds were not available in the Fiscal Year 1982 budget.

I. Project Description

Maintenance dredging is proposed to restore the 150 foot width and 3,000 foot long length of the 2.1 mile entrance channel to its authorized depth of 10 feet at mean low water. The proposed project would involve dredging approximately 75,000 cubic yards of clean sand. (Refer to grain size curves in Appendix.) The proposed dredging will be done by a hydraulic dredge and the material will be pumped via pipeline onto Harding Beach for beach disposal for a distance of approximately 4,000 feet. Dredging would start in the outer portion of the channel, and the work would continue shoreward. No material will be placed on the existing dune grass beyond the mean high water line. The pipeline will be placed at the approximate location of the mean high water line and the material pumped shoreward with the effluent draining into Nantucket Sound. Disposal would begin at the eastern end of Harding Beach and continue westward. Harding Beach was used previously for disposal when the channel was dredged in 1970, and approximately 32,000 cubic yards of sand was hydraulically pumped onto the beach. The locations of the dredging and disposal areas are shown on Figure 2.

The proposed work would take place between 1 March and 30 April 1984.

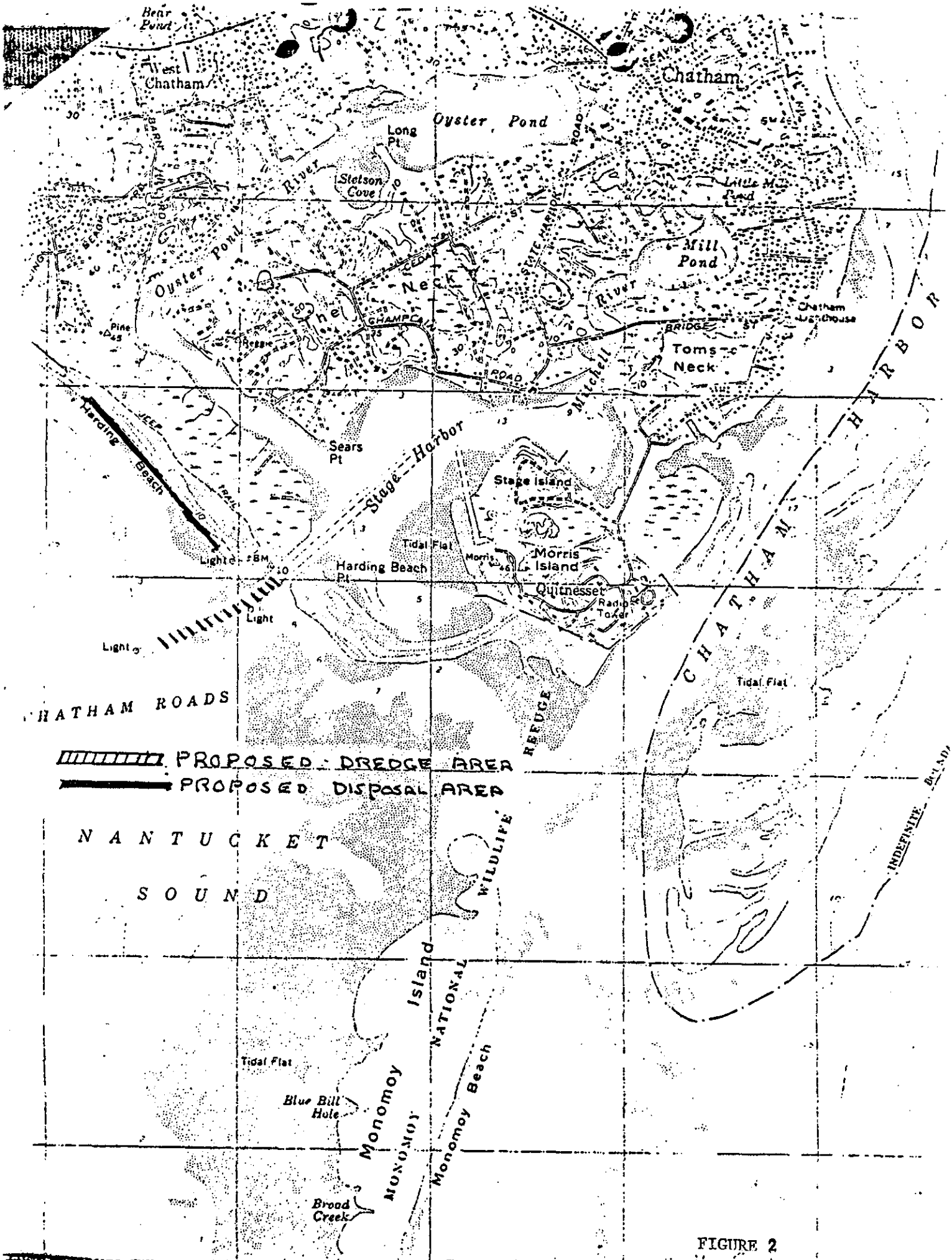

Bear Pond
West Chatham
Chatham
Oyster Pond
Long Pt
Stetson Cove
Oyster Pond River
Little Mill Pond
Mill Pond
Chatham Lighthouse
Tom's Neck
Sears Pt
Stage Harbor
Stage Island
Harding Beach
Harding Beach Pt
Tidal Flat
Morris Island
Quitnesset
Radio Tower
Light
CHATHAM HARBOR
CHATHAM ROADS
PROPOSED DREDGE AREA
PROPOSED DISPOSAL AREA
NANTUCKET SOUND
Monomoy Island
Monomoy National Wildlife Refuge
Monomoy Beach
Blue Bill Hole
Brood Creek
Tidal Flat
INDEFINITE

FIGURE 2

II. Purpose and Need for the Project

Existing and continuing shoaling conditions in the Federal channel in Chatham Roads are impeding navigation for the recreational and commercial vessels that utilize the harbor. Since the area is a summer resort dependent upon waterborne activities, as well as an established harbor for a large fleet of commercial and recreational boats, a safe navigable channel into Chatham (Stage) Harbor is an important concern to all harbor users. The shoals also interfere with the local Coast Guard's roles and missions in providing protection and assistance to mariners. The Coast Guard requires an open, navigable entrance channel into the harbor.

Dredging of approximately 75,000 cubic yards of clean sand would return the area to the authorized dimensions of 150 feet wide and 10 feet deep at mean low water. Shoaling has reduced the authorized depth to approximately 1-2 feet at mean low water. Grain size curves indicate that the material is composed of medium to fine sand. (Refer to Appendix.)

The Chatham Roads and Harding Beach is subject to extensive and continuous shoaling. It is a high energy area, and littoral drift has caused extensive sediment accretion along the entrance and in the lower portion of the navigation channel. Minor shoaling in the upper portion of the channel in Stage Harbor proper has not occurred to any significant extent, therefore that portion of the channel will not be maintained at this time.

The material will be placed along Harding Beach for a distance of approximately 4,000 feet. This disposal site was selected because of the need for sand on the beach, the compatability of the dredged material to the beach sediments and the economic advantage of hydraulically pumping the material from the dredge area onto the beach.

III. Alternatives

The alternatives considered for this project include a "no action" alternative, alternative dredging methods, and disposal alternatives. Alternative dredging methods include: hydraulic, sidecast, and mechanical dredging (hopper or clamshell). Disposal alternatives include: (1) open water disposal, and (2) upland disposal. The environmental and economic advantages and disadvantages of these alternatives are summarized in Table 1.

A. No Action Alternative

This alternative to the proposed work would be not to dredge the entrance channel into Stage Harbor. With this alternative, shoaling would continue in the entrance channel, and vessels would not be able to navigate through the channel into or out of Stage Harbor. The channel would eventually become closed to deeper draft boat traffic during the lower tidal stages. The eventual closing of the channel would lead to some substantial socio-economic impacts. These would include limiting the Coast Guard's capability for rapid response to incidents occurring in adjacent waters, a reduction in recreational boating in Chatham with a diversion of the recreational fleet to other possible overcrowded ports, and increased navigational hazards due to encroaching shoals. There would also be increased operating costs to commercial fishermen as a result of tidal delays, and possible relocation to other harbors.

An ecological impact which could result from the no action alternative is a reduction of freshwater outflow from Stage Harbor. Oyster River and Mill Pond contribute groundwater to the harbor system, and shoaling could prevent this water from flushing out into Nantucket Sound, resulting in an increase in water levels in Stage Harbor. Serious flooding could occur in the upper reaches of Stage Harbor during storm conditions augmented by high tides, with permanent inundation of the salt marshes on the east and west sides of the Harbor.

This alternative was therefore not considered feasible because of the economic disadvantages and possible environmental consequences.

B. Alternative Dredging Methods

The various types of dredging methods that could be considered for this project include using a hydraulic dredge, a sidecast dredge, a hopper dredge, or a clamshell dredge.

A hydraulic dredge pumps the sediments via pipeline onto a land or beach disposal area. A previous dredging operation in the channel in 1978 used a hydraulic dredge and pumped the material onto Harding Beach Point on the east side of the channel. This type of dredging was the most economical method to use in Chatham because of the availability of an adjacent disposal area and the small amount of material that was

Table 1
Comparison of Alternatives
Chatham (Stage) Harbor Maintenance Dredging

Alternatives	Environmental Considerations		Economic Considerations	
	Advantages	Disadvantages	Advantages	Disadvantages
(A) NO ACTION	None	Possible reduction of freshwater outflow from Stage Harbor.	None	Increased operating costs to commercial fishermen, relocation to other harbors, reduction in recreational usage, possible channel closing.
(B) Alternative Dredging Methods				
(1) Hydraulic	Less tubidity in the water column. Use of upland disposal.	Disturbance of bottom sediments and removal of benthic organisms.	Requires an upland disposal site, faster production rate.	Distance requirements for pipeline. Availability of disposal site in close proximity to dredge area.
(2) Hopper	None	Increased disturbance of sediments. Removal of benthic organisms. Impact on marine resources at disposal site.	Less affected by weather and river conditions. No transfering of material from one apparatus to another.	More expensive operation over-all.
(3) Clamshell	None	Same as hopper.	Economical for larger amounts of material if dredge site is a reasonable distance from disposal site.	Longer work time.
(4) Sidecast	Used only for clean sediments.	Extensive turbidity in inshore areas. Burial of shellfish & benthic populations.	Material does not have to be transferred, disposal is within 100 feet of dredge.	Only one dredge available in the U.S.
(C) Open Water Disposal-Boston Foul Area	Coarse material would settle quickly. Colonization of cobbles by epifauna soon after completion of disposal.	Temporary and local turbidity, burial of marine organisms at disposal site.	Economical for larger amounts of material. Available for silty sediments containing pollutants.	Increased project costs because of frequent trips and distance between dredge and disposal sites.
(D) Upland Disposal				
(1) Landfill	No impact to marine resources. Previously disturbed sites. Sites can be revegetated.	Revegetation may be hampered if dredged material is removed for use as fill. Temporary aesthetic impacts and temporary marine odor.	Use by private interests for fill.	Increased costs because of additional handling of the material. Government is not compensated when material is used by owner.
(2) Beach Disposal	Previously disturbed site. Little to no impact to marine organisms. Disposal seaward of mean high water line.	Temporary aesthetic impacts and temporary marine odor. Possible disturbance of shorebirds depending on time of year.	Use of hydraulic dredge.	Distance requirements for pipeline.

handled. This method has been selected for the proposed project for the same reasons.

Another dredging method, sidecast dredging, was previously used in the Chatham channel during the early to mid 1970's. The sidecast dredge removes and deposits the material in adjacent waters within 100 feet of channel limits through a pipeline attached to the dredge. A sidecast dredge is designed to maintain relatively shallow channels in high energy areas needing frequent maintenance. However, it was determined after using the sidecast dredge in the channel that this method was not alleviating the problem to a great extent. The material that was pumped into adjacent waters drifted back into the channel soon after dredging was completed. Therefore, beginning in 1978, sidecast dredging was no longer considered an appropriate method. Also, at this time, there is only one sidecast dredge in the United States, and it would be virtually impossible to obtain for the work.

A hopper dredge sucks the sediments up through pipelines into the dredge, then the dredge moves to the disposal site and the material is released. A clam-shell dredge excavates the sediments with a bucket-type apparatus and desposits them into a scow for transport to the disposal site where they are released through an opening in the bottom of the scow. An open-water disposal site is required when these dredges are used. The Boston Foul Area disposal site is the only EPA Interim designated ocean disposal site in the Massachusetts area. Disposal is acceptable here when ocean dumping requirements are met and no other alternative site is available.

A mechanical or hopper dredge is not a feasible alternative for dredging the entrance channel to Chatham Harbor because of the long distance that the material would have to be transported. It is a 250-mile round trip between Chatham and the Foul Area. Transporting the small amount of material (under 100,000 cubic yards) this long distance would not be cost effective, adding approximately $500,000 to the cost of the job.

C. Open Water Disposal

The only available open water disposal site that could receive dredged material from Chatham is the Boston Foul Area, the only EPA designated ocean disposal site in the Massachusetts area. Disposal here is acceptable provided ocean dumping requirments are met and no other alternative is available. Also the Foul Area is usually used for disposal of silty material that may contain certain pollutants.

In the case of Chatham, there is another alternative available which is beach disposal. Since the material is clean sand, and there is a need for it on Harding Beach, open water disposal was not considered appropriate. Also, as explained in the previous section, the material would have to be transported 250 miles round trip between Chatham and the

Foul Area. Transporting approximately 75,000 cubic yards of material by scow out to the Foul Area would add substanial costs to the job.

D. Upland Disposal

Upland disposal can include disposal on an upland landfill site or beach disposal.

A landfill site is used if the material is suitable for upland disposal and there is a site located within a reasonable distance from the dredging operations. If the material is trucked to a landfill site, the sediments are dredged by a clamshell or bucket dredge, the material is stockpiled, then removed to the disposal site. Should there be a suitable site adjacent to the area to be dredged, a hydraulic dredge is used, and the material is pumped onto the site. A clamshell or bucket dredge could not easily be used for this project with landfill disposal because of the unavailability of an area to stockpile the material, unavailability of a landfill site, and access. Also, the costs associated with the type of disposal for material from the entrance channel would be prohibitive.

In 1978, a hydraulic dredge was used and the sandy material pumped onto Harding Beach Point east of the Federal channel. The site is now filled to capacity and can not accommodate any more dredged material.

When the project was built in 1965, material was placed on the backshore of Harding Beach, and a large sandy upland site was created. This site is not avialable for disposal of dredged material because it also is filled to capacity and has reached its maximum height.

Harding Beach, located directly west of the entrance channel, is the only available beach disposal site. This area was used previously for disposal from channel dredging in 1970. There is a need for sand on Harding Beach, and, as hydraulic dredging is the most economical method to use for this project, Harding Beach was chosen as the selected disposal site.

There was a request by the Harding Shores Association, Inc. to have the sand material placed in the area of Cockle Cove, (entrance to Buck's Creek), located approximately 1-1/2 - 2 miles west of Harding Beach. In order to pump the material that distance, a booster pump and additional pipeline would be required as the limits of the hydraulic pumping is no more than one mile. Because of the costs involved in pumping the material to this site, it was not considered feasible.

IV. Affected Environment

A. General

The town of Chatham, Massachusetts is located in Barnstable County on the south shore of the most easterly portion of Cape Cod. It is about 75 miles southeast of Boston and 80 miles east of Providence, Rhode Island.

Chatham (Stage) Harbor embodies a mean water area of about 530 acres, of which there are 300 acres in the harbor proper, 17 acres in the Oyster Pond and River tributary to the west, and 60 acres in the Mitchell River and Mill Pond tributary to the northeast. Mean tidal range in the harbor is about 4 feet (mlw) with a spring range of 4.7 feet. The harbor is bordered on the east by Morris Island, on the north and northeast by the mainland of Chatham, and on the west and southwest by Harding Beach. The main harbor entrance, from Nantucket Sound, is through the deep water of Chatham Roads. The entrance channel extends southeasterly along Harding Beach, around the end of this spit, and then in a northwesterly direction to the inner harbor.

B. Water Quality

The water quality in the harbor is good because of the high energy characteristics in the area, and the lack of industrial development in Chatham. The waters surrounding Chatham are designated by the State of Massachusetts as Class SA. Class SA waters of Massachusetts are defined as suitable for any high quality water use includng bathing and water contact sports. They are also suitable for approved shellfish harvesting for direct human consumption.

C. Littoral Processes

The littoral processes offshore from Chatham are dynamic, particulary in the vicinity of Nauset Beach and Monomoy Island. These areas have been continually eroding and accreting since records were begun in 1846. Shoaling in Stage Harbor is a result of shore processes occurring by the redistribution and reformation of glacial deposits by wave action.

A cooperative beach erosion study of the southerly shore of Cape Cod was published in 1941 by the Beach Erosion Board of the Corps of Engineers, then under the War Department. It was estimated at that time that for a distance of about 2.1 miles along the outer face of Harding Beach the accretion averaged about 200 feet. In examining surveys performed from 1846-53 and again in 1940, it was stated that "the northward movement of the back shore of Harding Beach ..... is believed to be due to a change in opinion as to what constitutes a shoreline." The report went on to state that there were similarities of certain features in the early surveys and in 1938 aerial photographs, and it appeared that it was improbable that the shoreline movement indicated by the surveys represented accretion produced by overwash across Harding Beach. "There

has been some movement near the outer end of Harding Beach but no change in the length of the point for approximately 90 years."

In 1940, Monomoy Island was attached to Morris Island joined by material made available by the disintegration of Nauset Beach during the middle 19th century. Morris Island had been attached to the mainland, but was broken off during a storm on Feb. 14, 1940. Nauset Beach was opposite the mainland of Chatham. The islands breached during the hurricane of September 1944, but subsequently closed by natural means. The opening to Stage Harbor was between Morris Island and the eastern end of Harding Beach. During the winter of 1955-56 a small breach occurred between Monomoy Island and Morris Island and separated the islands at high tide. At the present time, Monomoy is still separated from Morris Island and Nauset Beach has grown southward towards Morris Island. The Federal channel was constructed in 1965, and material was deposited to the east of the channel, forming a sand dike connected to Morris Island.

Another Cooperative Beach Erosion Control Report was prepared by the Corps in July, 1956. A discussion in the report concerning sources of material indicated that the littoral drift in the area has been eroded from the beaches within the area as well as from those to the north and transported southward, principally by wave generated currents. The report continues to say that: "The richness of the drift is indicated by the rapid southward growth of Nauset Beach. The whole of the drift is not deposited on Nauset Beach as varying portions apparently move into deep water, around the tip of the spit, and to Monomoy Island. A portion of the littoral drift moves around the southerly tip of Nauset Beach with the tide. In the past this was apparently a major source of the material which entered the breach. However, as Nauset Beach has lengthened, the quantity of material reaching the breach has diminished to the degree that this source apparently furnishes an insignificant amount of material. Therefore, the major source of material shoaling Stage Harbor is apparently erosion in the breach and redistribution of material which was deposited in the easterly basin of the harbor at an earlier date." In summary, although the general drift is from the east and south, material from Harding Beach could, at times, be transported into Stage Harbor depending on weather and current conditions.

D. Sediments

Three surface grab samples were taken by the Corps of Engineers in August 1983 from three locations within the Federal channel at Chatham Harbor, and one surface sample was also collected from Harding Beach. The samples were tested for physical parameters only. The results of the physical testing are shown in Table 2. The location of these sites is shown in Figure 3. Grain size profiles for each sample site are included in the Appendix to this assessment.

The profiles shown that the sediments consist predominantly of sand. The harbor material was coarser than the beach sand with the exception of Site "C" which contained organics and measureable fines (4%).

TABLE 2
CHATHAM (STAGE) HARBOR
PHYSICAL TEST RESULTS
1983

STATION	A	B	C (Chatham Outer channel)	D (Harding Beach)	E
Depth (ft.)	surface	surface	surface	surface	surface
Soil Descrip.	light brown gravelly med. sand	light brown medium sand	dark grey fine sand with shell fragments & marsh grass	light brown medium to fine sand	light brown medium to fine sand
Med. Grain Size (mm)	0.85	0.65	0.18	0.42	0.31
% Fines	<1.8%	<1.0%	4.0%	<1.0%	<1.0%
Specific Gravity	2.66	2.67	2.68	-	-

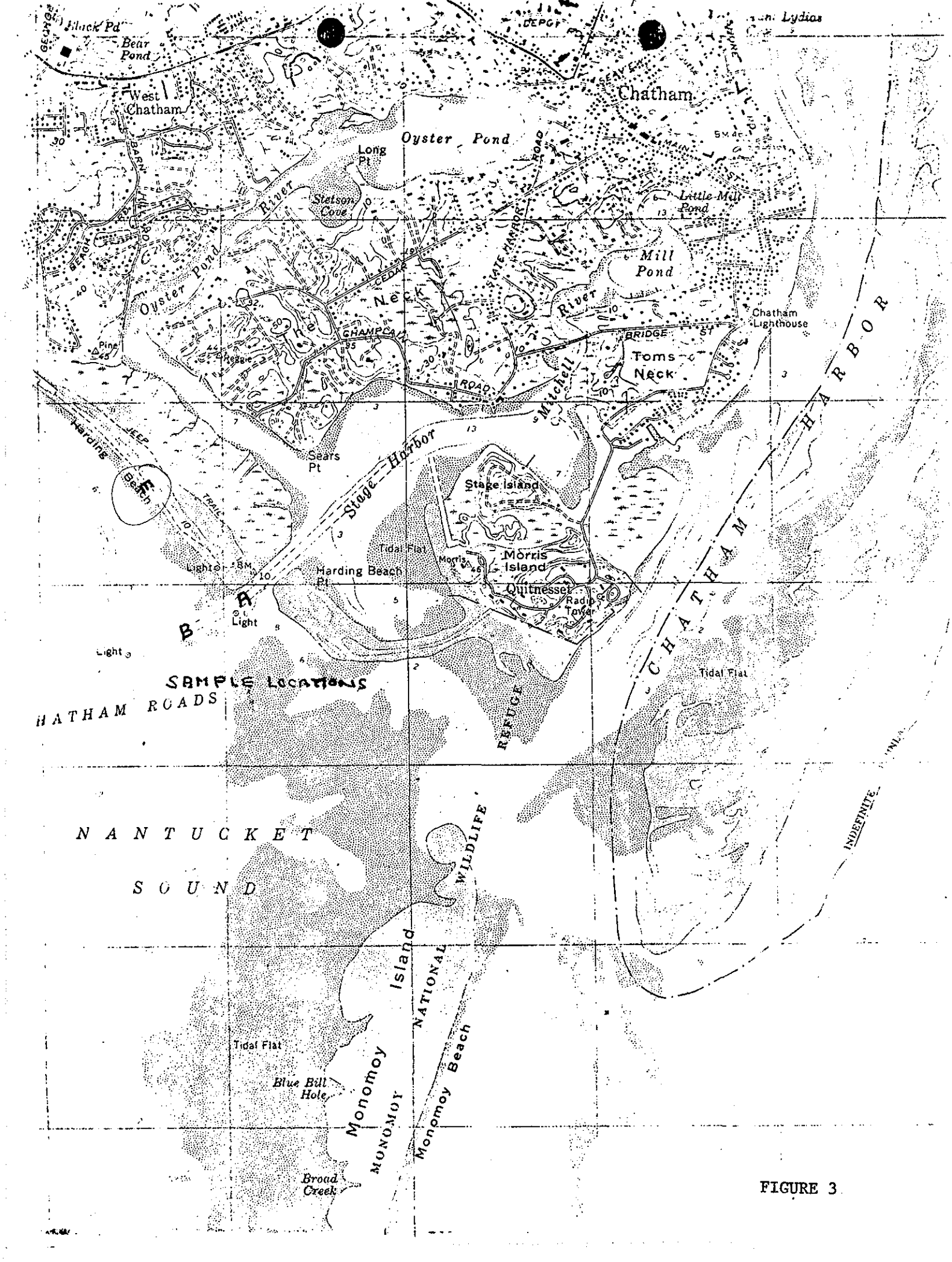
E. Aquatic Ecology and Marine Resources

Stage Harbor is an important area for finfish and shellfish resources. Oysters, quahogs, soft-shell clams and bay scallops are managed for sustained-yield production by the town of Chatham. The area northeast of Harding Beach Point is a major quahog and by scallop area. Finfish species important to the commercial and recreational fishery include menhaden, winter flounder, striped bass, bluefish and tautog. These species utilize the surrounding waters for spawning, feeding and nursing from spring through early autumn. In addition to licensed commercial shell fishermen, a large number of family and non-resident permits are issued annually.

The quahog, soft-shell clam and scallop beds are prolific and stable. Also, on either side of Harding Beach Point sizeable populations of soft-shall clams have become established since the construction of the sand dike over to Morris Island, and since disposal of previously dredged material on Harding Beach Point.

F. Vegetative Cover and Wildlife

Vegetation at the project area consists of dune grass (Ammophila brevigulata) along the natural berm that has formed beyond the mean high water line on Harding Beach. Further back along this area, which is composed of disposal material from construction of the Federal channel, towards the Oyster River, a few small shrubs are scattered throughout the area. A fringe of salt marsh is located along the Oyster River, with Spartina alterniflora the predominant species.


Black Pd
Bear Pond
West Chatham
Chatham
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Long Pt
Stetson Cove
Little Mill Pond
Mill Pond
Oyster Pond River
Cedar Neck
Champlain Road
State Harbor Road
Mitchell River
Bridge St
Toms Neck
Chatham Lighthouse
Pine
Reggie
Sears Pt
Stage Harbor
Harding Beach
Jeep Trail
Stage Island
Tidal Flat
Morris Island
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CHATHAM HARBOR
SAMPLE LOCATIONS
HATHAM ROADS
REFUGE
NANTUCKET SOUND
Monomoy Island
Monomoy National Wildlife Refuge
Monomoy Beach
Tidal Flat
Blue Bill Hole
Broad Creek
INDEFINITE

FIGURE 3

The surrounding tidal flats and shoals, particularly Monomoy Island, provide excellent feeding and resting areas for black duck, common eider, scoter, goldeneye, Canada geese, brant, and for many species of shore birds.

Two species of shorebirds, the Least tern (Sterna albifrons) and Piping plover (Charadrius melodus) which are listed by the U.S. Fish and Wildlife Service as National Species of Special Emphasis have been recorded in the Chatham area. Both species utilize open sandy beach areas for nesting activities. Monomoy Island is a haven for nesting shorebirds, particularly on the flats on the west side of the northern end of the island.

A June 1983 Census taken by the MA Division of Fisheries and Wildlife as part of their Annual Tern Census and Inventory program recorded 25 pairs of Least terns at Harding Beach Point, across the channel from Harding Beach. One pair of piper plovers were also recorded at Harding Beach Point. (The tally of piping plover nesting pairs was informal. Piping plover figures were obtained mainly incidental to tern censusing and did not represent an all-out effort to census the plovers.) It is believed by Federal and State resource agencies that the sand placed on this area from previous disposal operations has provided good nesting habitat for these species. Harding Beach Point is also an isolated area and disturbance is minimal as compared to Harding Beach, so it provides a relatively undisturbed area for breeding, nesting and brood rearing activities.

The piping plover normally returns in late March to early April. Nesting activity usually begins in mid to late April. The least tern follows the same general pattern, but about two weeks later than the plovers. The plover preferred habitat is the high beach area. They may nest near but not in areas dominated by dune grass. The least terns have been nesting on the old disposal mounds and sand blow-out areas which are generally further back from the high beach zone.

G. Endangered Species

According to U.S. Fish and Wildlife Service, certain populations of the least tern and piping plover are currently under review for threatened or endangered status. These species are also listed under the State of Massachusetts Natural Heritage Program inventory of rare flora and fauna. There are no species of rare flora on the proposed disposal site. Other terns that are considered rare by the Heritage Program and use the area to some degree, particularly Monomoy Island, include the Arctic tern and Roseate tern.

H. Cultural Resources

Numerous prehistoric archaeological sites are reported within the present town of Chatham, generally located in sheltered areas with a

variety of freshwater, saltwater and upland resources close at hand. The project area, however, contains no such recorded sites and its exposed character and more limited adjacent environment renders it an unlikely location for prehistoric settlement.

The only recorded historic period structures near the project area are associated with the old Stage Harbor Lighthouse, now a private dwelling just outside the project area. While Chatham Bars, to the east of Morris Island, was the scene of numerous shipwrecks, the area west of Monomoy witnessed far fewer wrecks. The only recorded wreck near the project site was that of the schooner Alice T. Boardman, which ran aground off Harding Beach on 1 February 1902. The schooner's location is probably considerably offshore.

V. Environmental Consequences

A. Impacts of Dredging

1. General

Dredging of approximately 75,000 cubic yards of sandy material from the Federal channel in Stage Harbor would be performed by a hydraulic dredge. The action of dredging would result in approximately two months of increased turbidity with associated minor impacts on the water quality, and physical and chemical effects on aquatic organisms. Physical effects include burial of organisms, while chemical effects could include any releases of contaminants to the water column. These impacts are discussed further in the following sections.

2. Water Quality

The removal of material from the entrance channel would temporarily suspend and expose the dredge material and its constituents to the water column. An increase in turbidity levels during dredging are the result of the dredge disturbing the bottom sediments. The amount of turbidity generated during dredging operations is difficult to determine because of differences in sediment characteristics, ambient currents and skill differences among dredge operators. The coarse sandy nature of the material, however, would limit turbidity in the waters around the dredge. Grain size analyses indicate that the harbor material was coarser than the beach sand with the exception of Site "C" which contained measurable fines of 4%. All other samples contained less than 1% fines. Disturbed sediments would gradually fall out of suspension from the water column. The small amount of suspended sediments that may remain in the water column would probably not exceed the natural turbidity levels found in this high energy area. Little release of sediment contaminants into the water column is expected because of the coarse sandy sediments, so there would be no degradation of the Class SA waters. The sandy sediments are generally less contaminated than silty sediments because of the lack of organic fines which trap contaminants found in the water column. Therefore, minor impacts on the water quality of Chatham Harbor are expected.

3. Impacts on Organisms

a. Physical

Benthic organisms associated with the sediments would be destroyed during the dredging process and removed from the site. Epifaunal and infaunal species such as crabs, tube worms and barnacles would be removed. Burrowing sediment feeding organisms would survive better than nonmotile or less motile organisms living on the surface. The loss of forage for predators such as crabs and finfish would be temporary as the dredge site would be recolonized within a few months after

dredging. Dredging would be completed before the shellfish spawning season (June 30 - Sept 15). More motile forms such as finfish would avoid the work area and should not be seriously affected. Lobsters and crabs in the area would survive in the dredge area as long as they are not physically damaged, although turbidity generated by the dredging may drive lobsters away from the area for a short time. There are no marine mammals in the area that could be affected by dredging operations.

b. Chemical

No chemical analyses were performed on the channel sediments because of the coarse sandy nature of the material. As discussed in the previous section, these types of sediments are usually less contaminated than silty sediments which contain organic fines which trap contaminants found in the water column. The Class SA water quality classification shows that there is little to no pollution in the waters surrounding Chatham. There is no heavy industry located along the channel with only recreational and small commercial fishing vessels passing through the area. The abundance of shellfish populations in and around Stage Harbor also indicate high water quality conditions. Therefore, there would be minimal chemical effects to aquatic organisms as a result of dredging operations.

B. Impacts of Disposal

1. Water Quality

There would be runoff draining off the site as the material is being pumped onto the beach and would drain directly into the waters off of Harding Beach. Because of the high water quality conditions in Chatham Harbor, the discharge slurry would not degrade the waters near and around Harding Beach. There would be temporary turbid conditions directly offshore; however, due to the large grain size of the material the particles should settle out quickly. Turbidity levels are likely to be low and short-term.

2. Sediment Quality

The quality of the sediments at the disposal site would not be adversely affected. The dredge sediments are clean coarse sands, which are similar to the sediments on the beach. Disposal would not significantly change the present character of the beach. The over-all character of the disposal site would actually be improved by the addition of clean sand.

3. Effects on Marine Organisms and Wildlife

Disposal of approximately 75,000 cubic yards of sand on Harding Beach would not adversely affect shellfish or benthic organisms. The disposal area is a highly used recreational beach, and there are no

significant shellfish populations immediately offshore of the beach. The nearest shellfish population is located across the channel offshore from Harding Beach Point. Any turbidity generated from the runoff into the waters of Nantucket Sound would be short-term, and the large-sized particles would settle out quickly and the possibility of transport of the discharge slurry back into the channel would be reduced. The shellfish populations in the area would not be injured by dredging operations or suffer from the effects of increased turbidity. Benthic organisms in the immediate vicinity of the discharge would be buried or injured. Motile forms would be able to avoid the discharge area. These effects would be minimal because of the late winter timing of the work when population recruitment would be low and recolonization would occur soon after discharge has stopped. Any finfish directly offshore would avoid the immediate discharge area, and there should be no effects on flounder spawning activities.

The areas to the east of Harding Beach - Nauset Beach, Monomoy Island, and Harding Beach Point are important resting, breeding, nesting and brood rearing areas for many species of shorebirds. Records indicate that the least terns and piping plovers have been sighted on Harding Beach Point. The inventory did not record any sightings on Harding Beach, although they may occasionally rest and feed on the beach. Based on this information, the discharge of dredged material would not adversely affect the nesting activities of these species. Dredging would take place from 1 March through 30 April, before the birds should start coming heavily into the Chatham area. However, Harding Beach is also a highly used recreation area, even in the winter months when the local residents use the beach for walking. The least terns and plovers do not utilize frequently disturbed areas for nesting; if they try one place and their nest sites are disturbed, they usually will go to another site. Local officials indicated that the northern end of Monomoy Island and the southern end of Nauset Beach are common nesting areas for the least tern. Disposal operations could provide a net increase in high beach area for these birds, particularly the piping plover. However, this will be depend on the usage of the beach during the late winter timeframe.

4. Historic and Archaeological Resources

As the entrance channel to Chatham Harbor has been repeatedly dredged since 1965, no prehistoric or historic archaeological resources would be affected by dredging for this project. The exposed location and limited food resources available at Harding Beach render it an unlikely area for prehistoric sites, while the general stability of its shoreline since at least the 1850's renders historic wrecks unlikely to be located above present mean sea level. Therefore, disposal of dredged material on Harding Beach is unlikely to affect significant historic or prehistoric resources. Coordination with the Massachusetts Historical Commission has confirmed this finding.

C. Mitigation

Although there have been no records of least tern and piping plover nesting activity on Harding Beach, these species do nest across the channel on Harding Beach Point. In order to avoid any impacts on these species which may be in the area, and avoid disturbing any nest establishment, dredging would take place between March 1 and 30 April 1984. This schedule will be reflected in the contract specifications, and every effort will be made to adhere to the schedule. There are potential delay factors, however, such as weather and sea conditions, which can impact dredging operations and result in additional work time.

Disposal operations will start on the eastern end of Harding Beach and continue westward. All material will be placed below the mean high water line, below the natural berm. No material will be placed on this vegetated natural berm that extends along Harding Beach.

VI. Coordination

Coordination with Federal, State and local agencies was initiated in the fall of 1983 through a series of letters to the following:

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
National Marine Fisheries Service
MA Coastal Zone Management
MA Division of Water Pollution Control
Clerk of Selectmen, Town Hall, Chatham
Harbormaster, Town of Chatham

A public notice was issued on 14 October 1983. Comments on the public notice were received from the Massachusetts Natural Heritage Program, Massachusetts Audubon Society, and U.S. Fish and Wildlife Service. The comments discussed concerns associated with impacts of the project on least tern and piping plover nesting habitat. The project schedule was revised so that the work should be accomplished before nesting activity begins. This schedule was coordinated by telephone with the above agencies. A meeting was also held on 30 November 1983 with local officials to discuss project plans.

Copies of correspondence can be found in the Appendix.

VII. Compliance with Federal Protection Statutes

1. Archaeological and Historic Preservation Act, as amended 16 U.S.C. 469 et seq. Not applicable.

2. Clean Air Act, as amended, 42 U.S.C. 7401 et seq. Review of this Assessment will constitute compliance with this Act. The dredging contract will specify that the work must be in compliance with the regulations of the Clean Air Act.

3. Clean Water Act (Federal Water Pollution Control Act), as amended, 33 U.S.C. 1251 et seq. Coordination of the attached Section 404(b)(1) Evaluation and granting of the State administered Section 401 permit will constitute compliance with this Act.

4. Coastal Zone Management Act of 1972, as amended, 16, U.S.C. 1451 et seq. Approval of the consistency determination for Coastal Area Management Program constitutes compliance with the Act.

5. Endangered Species Act of 1973, as amended, 16, U.S.C. 1531 et seq. Coordination of these environmental documents with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service will constitute compliance with this Act. No endangered species will be impacted by the proposed action.

6. Estuary Protection Act 16 U.S.C. 1221 et seq. In compliance.

7. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq. In compliance.

8. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq. Coordination of this Assessment will constitute continuing compliance with this Act.

9. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq. Not applicable.

10. Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1404 et seq. The dredged material meets the criteria set forth in 40 CFR 227.13 paragraph (1). Concurrence with this Assessment by EPA Regional Director will constitute compliance with this Act.

11. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq. Coordination of this Assessment with the State Historic Preservation Officer will constitute compliance with this Act.

12. National Environmental Policy Act of 1969, as amended, 42 U.S.C. 432 et seq. Coordination of this Assessment will constitue continuing compliance with this Act. This assessment has been prepared in compliance with this Act.

13. Rivers and Harbors Appropriation Act of 1899, as amended, 33 U.S.C. 401 et seq. Not applicable.

14. Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001 et seq. Not applicable.

15. Wild and Scenic Rivers Act, as amended 16. U.S.C. 1271 et seq. Not applicable.

16. Executive Order 11514, Protection and Enhancement of Environmental Quality. Issuance of State and Federal permits will constitute compliance.

17. Executive Order 11593, Protection and Enhancement of the Cultural Environment. In compliance.

18. Executive Order 11988, Floodplain Management. In compliance.

19. Executive Order 19990, Protection of Wetlands. Issuance of State Water Quality Certification and Coastal Zone Management Consistency Determination and Federal permits will constitute compliance.

FINDING OF SIGNIFICANT IMPACT

After careful consideration of the information in this Environmental Assessment, it is my conclusion that development of the proposed project is in the best overall public interest. Implementation of the proposed project would not require a significant commitment of physical, natural or human resources.

Points considered include the effects of dredging the entrance channel and disposal of the dredged material along approximately 4,000 feet of Harding Beach, located west of the entrance channel. The physical analysis of the material to be removed show that it is suitable for beach disposal. Harding Beach was used in 1970 for disposal of dredged material from the entrance channel to Chatham Harbor.

In my evaluation, this assessment has been prepared in accordance with the National Environmental Policy Act of 1969. The determination that an Environmental Impact Statement is not required is based on the information contained in the Environmental Assessment and the following considerations:

1. The proposed plan would not involve wetlands or affect any endangered species, archaeological and/or cultural resources or commercially important shellfish populations.

2. The sediments to be dredged are clean and suitable for beach disposal.

3. Impacts associated with the proposed work would be minimal, consisting of temporary turbidity and loss of benthic organisms at the dredge site.

4. Coordination with appropriate Federal and State agencies insured that concerns and suggestions were made known to the Corps so that these concerns could be addressed during project planning.

There does not appear to be any remaining major environmental problems, conflicts or disagreements in implementing the proposed work. I have determined that implementation of the proposed action would not have a significant impact on the human environment.

11 JAN 84
DATE

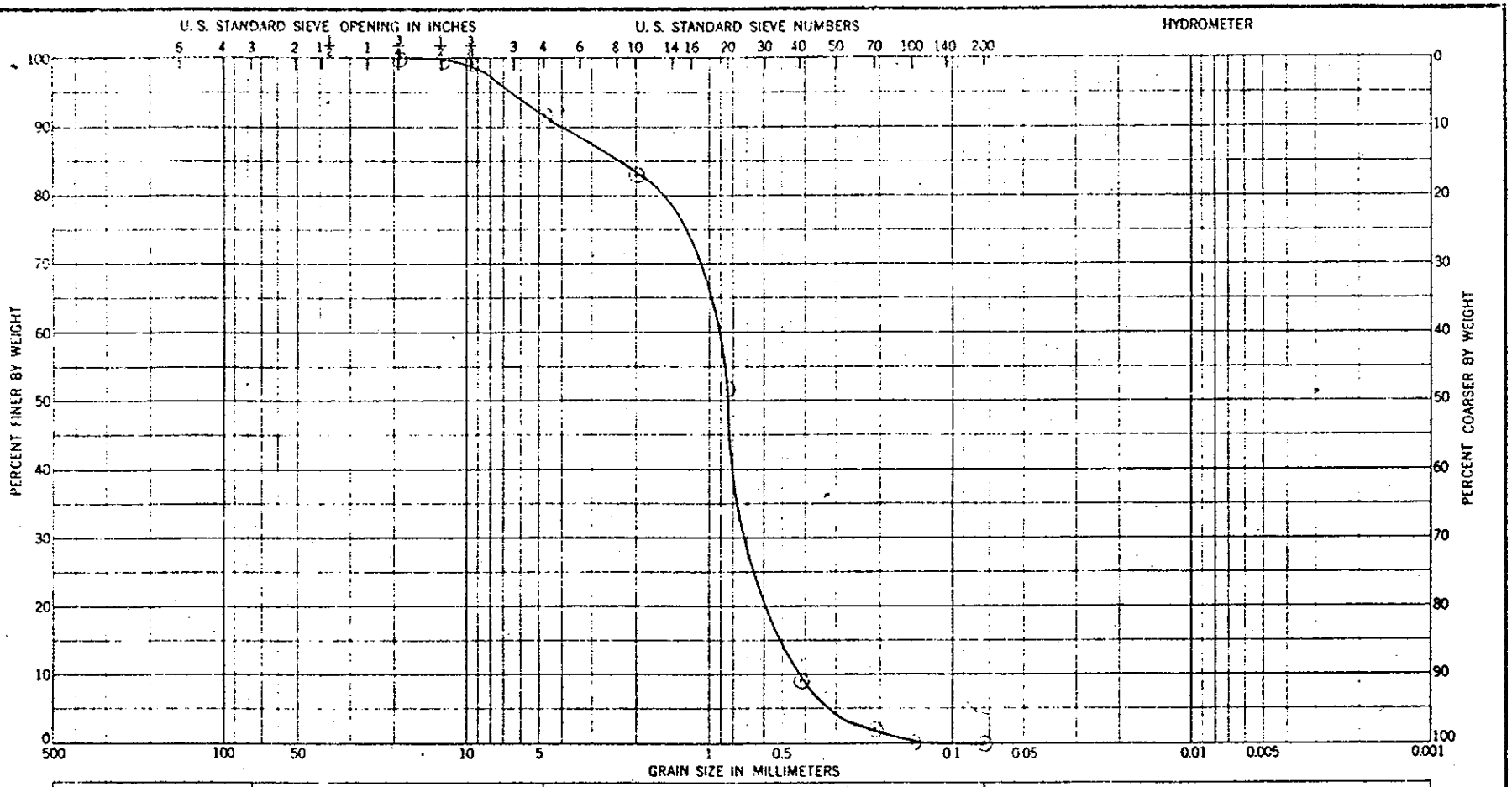
CARL B. SCIPLE
Colonel, Corps of Engineers
Division Engineer

APPENDIX

CHATHAM (STAGE)HARBOR
CHATHAM,MA

Grain Size Curves
Pertinent Correspondence

GRAIN SIZE CURVES



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
A		LT. brown-grey f. SAND (SP)				
		Sp. Gr. = 2.66				

GRADATION CURVES

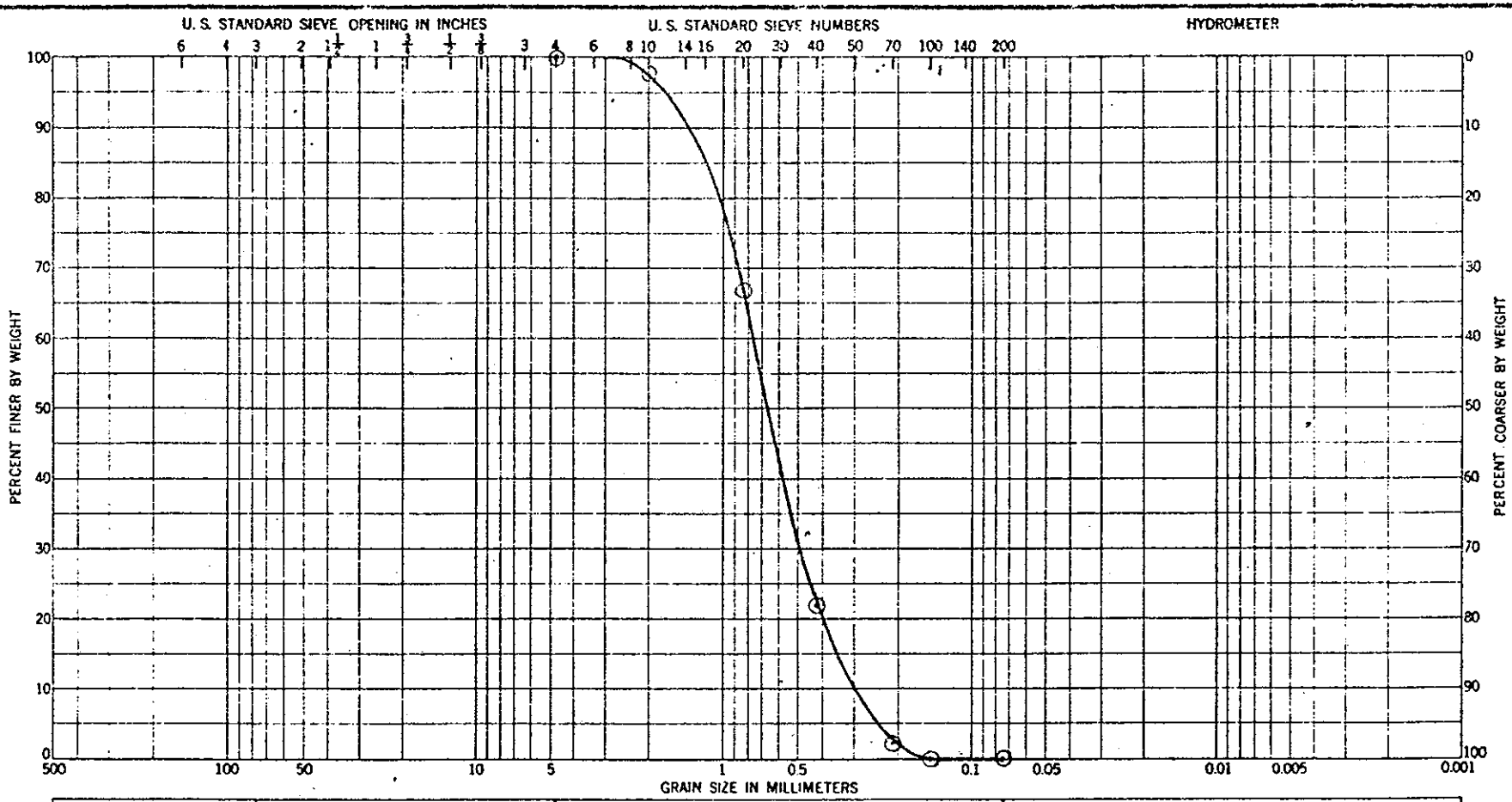
Project: CHATAM HBR., MA

Area: A

Boring No.: 100-B4-1

Date:

ENG FORM 1 MAY 63 2087



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
B		Lt. brown - m-f SAND(SP)				
		Sp. Gr. = 2.67				

GRADATION CURVES

Project CHATAM HBR., MA

Area B

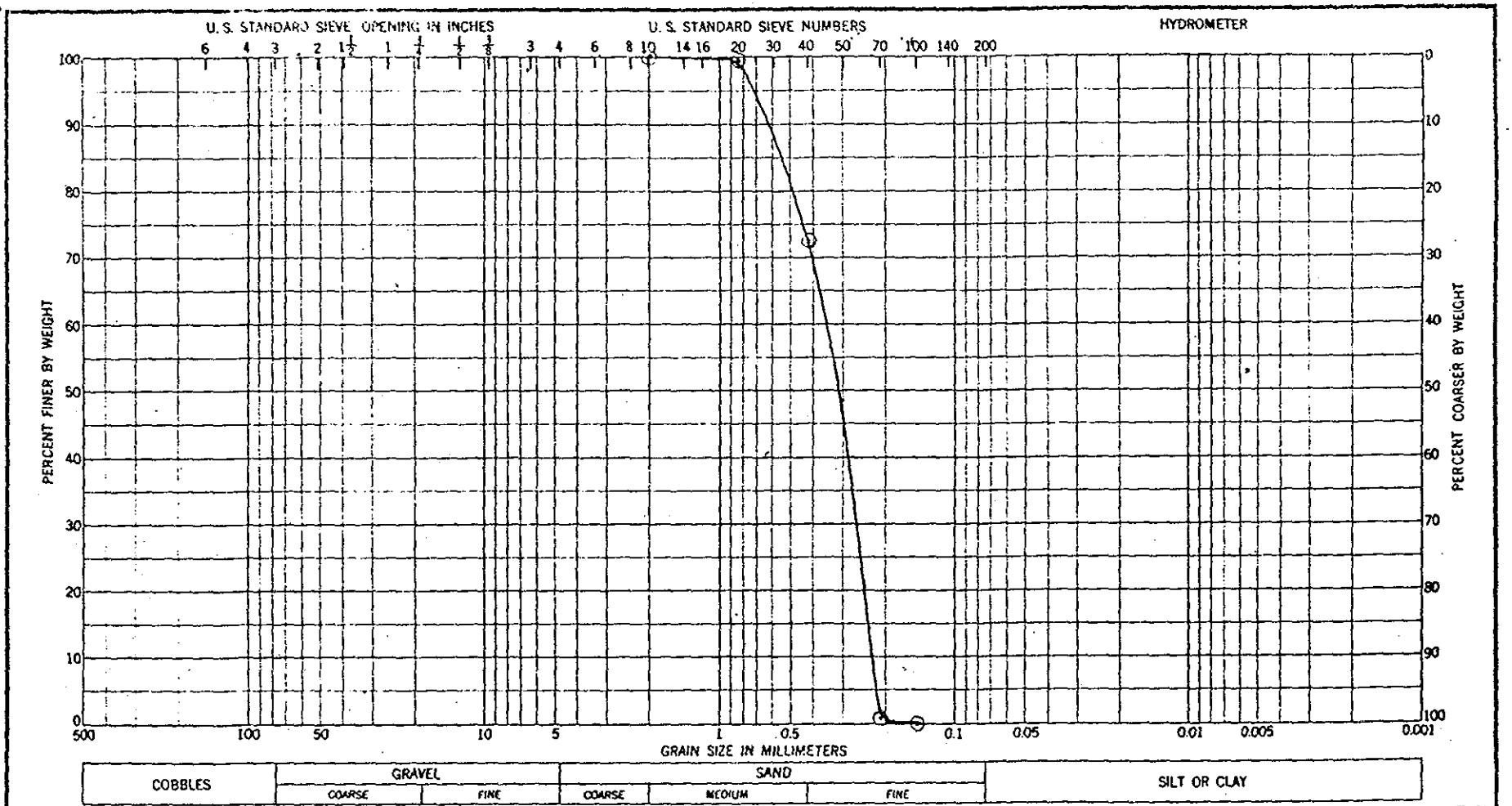
LAB SER.

Boring No. 100-366-2

Date 9/16/83

ENG FORM 1 MAY 63 2087

NEU FEB 76 350



Sample No.	Elev or Depth	Classification	Nat w %	LL	PL	PI
E		L ± brown-m-F SAND(SP)				

GRADATION CURVES

Project CHATAM, MA

Area E

Boring No. LAB SER 100-366-5

Date 9/16/83

ENG FORM 1 MAY 63 2087

PERTINENT CORRESPONDENCE

December 22, 1983 Sullivan/je/351

Navigation Branch, Operations Division

Mr. Neil W. Driscoll
Harding Shores Association, Inc.
182 Indian Hill Road
Carlisle, MA 01741

Dear Mr. Driscoll:

This is in reply to your letter of November 10, 1983 and the December 16,1983 visit by Mr. Vulgaropulos to this office concerning placing material from the Chatham (Stage) Harbor maintenance dredging project in the Cockle Cove area of Chatham.

On November 30, 1983, Mr. Sullivan of this office visited the Cockle Cove area accompanied by the Chatham Harbor Master, Mr. Peter Ford. The Cockle Cove area is located approximately one and one-half miles from the Chatham (Stage) Harbor channel. Hydraulically pumping dredged material over this distance would require a booster dredge at an estimated additional cost of approximately $150,000 to $200,000. The Corps of Engineers is not authorized to incur this additional cost. An alternative might be to stockpile the dredged material in the area of the Harding Beach parking lot from which Chatham could be trucked away by private interests; the parking lot is owned by the Town of Chatham. The Selectmen indicated that they would not allow this area to be used for stockpiling material.

The invitation for bids for maintenance dredging of Chatham(Stage) Harbor was issued on December 13, 1983. As discussed with Mr. Vulgaropulos, we are amenable to considering means of placing material from future maintenance of the channel in the area you have identified if a means of cost sharing can be established.

Should you have any questions, please contact Mr. Daniel Sullivan at (617) 647-8351.

Sincerely,

D. SULLIVAN

C.G. Boutilier
Chief, Navigation Branch

CH. NAV. BR

MASSACHUSETTS
HISTORICAL
COMMISSION

COMMONWEALTH OF MASSACHUSETTS
Office of the Secretary of State
294 Washington Street
Boston, Massachusetts
02108
617-727-8470

MICHAEL JOSEPH CONNOLLY
Secretary of State

December 16, 1983

Joseph L. Ignazio
Chief, Planning Division
Army Corps of Engineers
424 Trapelo Road
Waltham, Mass 02254

RE: Proposed Maintenance Dredging, Chatham

Dear Mr. Ignazio:

My staff has reviewed the materials received December 14, 1983, which you submitted describing the location of the proposed maintenance dredging in Chatham Harbor. After review of the material, it has been determined that your proposal will not affect significant cultural, historical, or archaeological resources.

This initial consultation to identify resources in the project area has been undertaken in accordance with 36CFR 800, the Advisory Council Regulations for the Protection of Cultural Resources. Since no significant resources were identified in the vicinity of the proposal, no further compliance with Council Procedures is required.

If you should have any questions, please contact Brona Simon of this office. Thank you for your cooperation.

Sincerely,

Valerie Talmage

Valerie A. Talmage
Executive Director
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

cc: John Wilson, Army Corps of Engineers

VAT/BS/lk

Ms. Brown

December 8, 1983

Planning Division
Impact Analysis Branch

Ms. Valerie A. Talmadge
Executive Director
Massachusetts Historical Commission
294 Washington Street
Boston, Massachusetts 02108

Dear Ms. Talmadge:

As discussed in a telephone conversation on November 17, 1983 between our Division Archaeologist, John S. Wilson, and Ms. Simon, of your staff, we enclose maps illustrating the area of proposed maintenance dredging and disposal of 75,000 cu. yds. of material at Chatham Harbor. Map 1 illustrates the area's appearance in 1954, while Map 2 shows its present appearance.

As may be noted, the area to be dredged is a modern channel where no significant prehistoric or historic resources may be expected.

Disposal would be on Harding Beach, as the material is clean sand. Harding Beach is a low sandspit with a backshore tidal marsh fronting Oyster Creek. Our records indicate that the beach was fairly stable since at least 1850, with minor accretion due to eastward littoral drift. (Map 1). The breaching of Monomoy in 1957-1958 resulted in natural filling of the inlet east of Harding Beach, necessitating a new federal channel through the beach in 1965, east of the old lighthouse (Map 2). "Sidecast" dredging over several years has deposited sand on the beach immediately adjoining the channel, and hydraulic dredging projects in 1970 and 1978 deposited a total of 72,000 cu. yds. on an unknown, but possibly greater portion of the beach.

As the present beach extent appears to have been stable at least since 1850, it is unlikely that historic shipwrecks would have been driven as far inshore as the area where sand would be deposited by this project. While prehistoric sites are reported on higher ground on Morris Island and near several ponds in Chatham, such resources appear less likely on a low, exposed beachfront such as Harding Beach. Further, natural dune movement, coupled with prior material disposal on the beach would probably have severely compromised the integrity of any resources present.

September 30, 1983 Sullivan/je/351

Navigation Branch, Operations Division

Mr. Richard F. Delaney
Director, Coastal Zone Management
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Dear Mr. Delaney:

This letter is our consistancy determination for maintenance dredging of the Chatam(Stage) Harbor Federal navigation project located in the Town of Chatham.

The authorized Federal project at Chatham (Stage) Harbor provides for an entrance channel ten feet deep at mean low water and 150 feet wide from Chatham Roads through Harding Beach into Stage Harbor, a length of about 2.1 miles. Work proposed involves removing approximately 75,000 cubic yards of sand from the entrance channel. The proposed dredging will be done hydraulically and the material will be pumped via pipeline onto Harding Beach for beach nourishment. The disposal area will be diked using material available on the site; no material will be placed on the existing dune grass above the diked area. The pipeline will be placed at the approximate location of the mean high water line and the material will be pumped shoreward to the diked area assuming the natural slope of the beach with the effluent drained into Nantucket Sound. The enclosed sediment grainesize curves from samples taken on August 16, 1983 show that material consists of medium to fine sand. A survey of the disposal area on Harding Beach is scheduled to be performed within a month and will be forwarded to you when available. Sample locations taken from the entrance channel and Harding Beach and limits of proposed dredging and disposal are shown ontthe enclosed maps.

The work will be performed by a private contractor and is scheduled to take place in April and May of 1984. We believe that the proposed work is consistent with applicable CZM policies 1,2,5, and 19. Please contact Mr. Daniel Sullivan at (617)647-8351 if there are any questions.

Sincerely,

D. SULLIVAN
CH. NAV. BR.

Carl G. Boutilier
Chief, Navigation Branch

Enclosure

CF: Mr. Thomas R. PennypackerII, Clerk of Selctmen, Town Hall, Chatham, MA 02633
Mr. Peater Ford, Harbormaster, 263 Cowell Road, Chatham, MA 02633

September 26, 1983

Operations Division,
Navigation Branch

Mr. Clyde Shufelt
Chief, Municipal Permits Section
Environmental Protection Agency
JFK Federal Bldg.
Boston, MA 02203

Dear Mr. Shufelt:

We are developing a proposal to perform maintenance dredging in the Chatham (Stage) Harbor Federal navigation project in Chatham, Massachusetts. I am writing to seek your comments on our plan for the proposed dredging.

The authorized Federal project at Chatham (Stage) Harbor provides for an entrance channel ten feet deep at mean low water and 150 feet wide from Chatham Roads through Harding Beach into Stage Harbor, a length of about 2.1 miles. Work proposed involves removing approximately 75,000 cubic yards of sand from the entrance channel. The proposed dredging will be done hydraulically and the material will be pumped via pipeline onto Harding Beach for beach nourishment. The disposal area will be diked using material available on the site; no material will be placed on the existing dune grass above the diked area. The pipeline will be placed at the approximate location of the mean high water line and the material will be pumped shoreward to the diked area assuming the natural slope of the beach with the effluent drained into Nantucket Sound. The enclosed sediment grain size curves from samples taken on August 16, 1983 show that material consists of medium to fine sand. A survey of the disposal area on Harding Beach is scheduled to be performed within a month and will be forwarded to you when available. Sample locations taken from the entrance channel and Harding Beach and limits of proposed dredging and disposal are shown on the enclosed maps.

The work is scheduled to take place in April and May of 1984. A public notice will be issued shortly. I would appreciate receiving any comments you may have by November 2, 1983. Should you have any questions, please contact Mr. Daniel Sullivan of my staff at (617) 647-8351.

Sincerely,

BOUTILIER

ANDRELIUNAS

Encls

V. L. Andreliunas
Chief, Operations Division

Copies furnished:
Mr. Thomas R. Pennypacker II, Clerk of Selectmen, Town H all, Chatham, MA 02633 w/encls
Mr. Peter Ford, Harbormaster, 203 Crowell Road, Chatham, MA 02633 w/encls
Navigation Br. File
Same letter to: See attached sheet

SECTION 404(b)(1) EVALUATION

FOR

MAINTENANCE DREDGING

CHATHAM (STAGE) HARBOR

CHATHAM, MASSACHUSETTS

Prepared By:

Susan E. Brown
Biologist

Department of the Army
New England Division, Corps of Engineers
Waltham, Massachusetts 02254

December 1983

References

a. Section 404(b) of Public Law 92-500, as amended, Clean Water Act.

b. 40 CFR Part 230 Subparts A, B, C, D, E, F, G and H dated 24 December 1980.

I. Project Description

a. Location

The project is located within the Federal entrance to Chatham (Stage) Harbor in Chatham, Massachusetts. The channel extends from Chatham Roads through Harding Beach and Harding Beach Point into Stage Harbor, a length of 2.1 miles. The harbor is bordered on the east by Morris Island, with a State constructed sand dike and roadway connecting the island to the mainland. The harbor is also bordered on the north and northeast by the mainland coast of Chatham, on the west and southwest by Harding Beach, and Federally constructed sand dike between Harding Beach Point and Morris Island. The town of Chatham is approximately 75 miles southeast of Boston and 16 miles east of Hyannisport.

b. General Description

The proposed plan consists of removing approximately 75,000 cubic yards of sand from the entrance channel to Stage Harbor for a distance of approximately 2.1 miles. The proposed dredging would be done hydraulically and the material will be pumped via pipeline onto Harding Beach for beach nourishment. The pipeline will be placed at the approximate location of the mean high water line and the material will be pumped shoreward with the effluent draining into Nantucket Sound. The work would be performed between March 1 and April 30 of 1984.

c. Authority and Purpose

The purpose of the project is to maintain safe navigation into Stage Harbor for the recreational and commercial fleet that utilize the harbor.

The project was authorized by the 1945 River and Harbor Act, and amended by 1962 and 1964 Design Memoranda for major maintenance and improvement work. The project was completed in 1965 with a subsequent extension of the west jetty to 500 feet completed in 1967.

d. General Description of Dredged or Fill Material

The material consists of medium to fine clean sand. The volume of the material is approximately 75,000 cubic yards. The source of the material is from the entrance channel to the harbor at Chatham, Massachusetts.

e. Description of the Proposed Discharge Site

The discharge is along approximately 4,000 feet of Harding Beach located to the west of the entrance channel. It is an open sandy beach facing Nantucket Sound. The Chatham Roads area is a high energy system, with the shoal areas offshore constantly moving with the littoral drift.

f. Description of Disposal Method

Material from the entrance channel will be removed by a hydraulic dredge. A pipeline will extend from the dredge to Harding Beach, where the end of the pipe will be placed at the mean high water line, and the material will be pumped onto the beach. Disposal will begin at the eastern end of the beach, and continue westward by attaching additional pipeline.

II. Factual Determination (Section 230.11)

a. Physical substrate determination

The proposed discharge site would not undergo any significant change in the present characteristics of the substrate due to the proposed discharge.

The substrate elevation and slope at the disposal site would not be significantly changed by the discharge of the dredge material. There will be an increase in sand on Harding Beach. However, after disposal has finished, the material will be leveled off so that the beach is compatible for recreational use.

Sediments at the dredge site are similar to those found at the disposal site. The sediments are made up of medium to fine sands. (Refer to grain size curves in Appendix.)

Because of the large-grain size of the material, it should settle out quickly from the water column. The small amount of suspended sediments that may remain in the water column would probably not exceed the natural turbidity levels that are typical in this fairly high energy area.

The discharge of dredged sediments onto Harding Beach may bury benthic organisms in the vicinity of the discharge. Motile forms in the offshore area such as fish or crabs would be able to move out of the area. There would be no changes in sediment type that could have an adverse physical effect on benthic organisms.

Once discharge is completed, the beach sediments will be smoothed out so that all the sediments will blend in and there will be an even elevation.

If the weather is windy, the descent of the sand and gravel particles could be delayed by the higher surface current velocities. However, discharge would not take place if the waters are too rough. The proposed project would not involve dredge or fill activities in any wetlands.

b. Water Circulation, Fluctuation and Salinity Determinations

Current patterns, circulation, normal water fluctuation and the tidal regime would not be altered in such a manner as to result in adverse impacts on the environment.

Chemical and physical characteristics including pH, dissolved oxygen levels, nutrients, clarity, color and odor would not be permanently changed from present conditions. There would be no introduction of nutrients that would result in the possibility of increased eutrophication.

Discharge of the dredged material would not restrict or reduce the freshwater flow into and through Chatham Harbor. Therefore, existing salinity patterns and mixing characteristics would not be altered in the channel area.

c. Suspended Particulate/Turbidity Determination

Disposal activities are expected to temporarily increase suspended particulate and turbidity levels. This increase would be minimal and no long term impacts are expected. The material should settle out quickly because of the large grain size of the sandy material. The discharge of the dredged material would not violate such water quality standards as are appropriate and applicable by law.

Chemical and physical properties of the water column would not be adversely affected. Light penetration may be temporarily reduced during discharge activities as the result of turbidity. Dissolved oxygen levels should not be reduced by the proposed discharge. There would be no introduction of toxic metals or pathogens and organic loads would not increase. The aesthetics of the entrance channel area would be temporarily impacted by the presence of the dredge in the river.

The processes of primary production and photosynthesis would not be adversely affected by any increases in suspended particulates. Suspension and filter feeders would also not be adversely affected because of the late winter work time.

d. Contaminant Determination

The material proposed for discharge would not introduce, relocate or increase contaminants at the proposed disposal site. The entrance channel material consists of clean sandy material.

e. Aquatic ecosystem and organism determination

Discharge of the dredged material would not significantly disrupt the chemical, physical or biological integrity of the aquatic ecosystem. The food chain would not be significantly disrupted in such a manner as to alter or decrease diversity of plant or animal species.

Discharge activities may temporarily disrupt faunal movement but are not expected to significantly interfere with movement into and out of feeding, spawning, breeding or nursery areas. Turbidity would be temporary. Disposal activities have been scheduled for late winter to avoid impacts on spawning activities and anadromous fisheries.

Discharge of the dredged material would not release pollutants that could be moved by currents or wave action into any productive shellfish beds. There would not be undesirable changes in current patterns, salinity patterns and flushing rates which would affect shellfish.

Disposal activities would not interfere with reproductive processes or cause undue stress to juvenile shellfish forms. The nature of the material should keep it from becoming resuspended to the point of affecting shellfish in the shallower areas along the river bank. The discharge would not interfere with local commercial fishing activities.

Discharge activities would destroy benthic organisms inhabiting the immediate areas. This impact would be minor because of the nature of the disposal site (heavily utilized recreational beach) and the timing of the work in late winter. Motile organisms in the offshore waters would be able to move out of the area.

Discharge of the material would not degrade substrate, water quality and hydrological parameters as determined through application of Section 230.11(a) and (b).

Analysis of the biological community at the discharge site is considered unnecessary as placement of the dredged material on Harding Beach would not result in degradation of water quality or a release of undesirable contaminants in the surrounding environment.

There are no Federally listed or proposed endangered or threatened species under Section 7 of the Endangered Species Act that would be adversely affected by the proposed discharge.

There are no special aquatic sites in the project area or discharge site that would be affected.

f. Proposed Disposal Site Determinations

The discharge of dredged material would not restrict or reduce the freshwater flow in the Chatham Harbor area. Existing salinity patterns and mixing characteristics would not be altered. The placement of clean sandy material would not violate such water quality standards as are appropriate and applicable by law. The waters off of Chatham are designated by the State of Massachusetts as Class SA. Class SA waters are suitable for any high quality water use including bathing and water contact sports. It is also suitable for approved shellfish harvesting for direct human consumption. There would be no introduction of materials as a result of the proposed work that would violate these standards. The material in the entrance channel consists of clean sand.

Municipal and private water supplies, recreational and commercial fisheries and water related recreational activities would not be adversely affected by the proposed discharge. There are no parks, national and historic monuments, national seashores, wilderness areas, research sites or similar preserves at the discharge site that could be affected.

The aesthetics at the proposed discharge site would be temporarily degraded due to the presence of the hydraulic dredge.

g. Determination of cumulative effects on the aquatic ecosystem

In the future, the entrance channel will most likely have to be dredged once again, and a disposal site chosen for the material. Should Harding Beach be used again, there should be no cumulative effects on the aquatic ecosystem. Shortly after discharge is completed the site characteristics would be similar to pre-disposal conditions.

h. Determination of secondary effects on the aquatic ecosystem

There would be no adverse effects on the aquatic ecosystem as the result of the proposed discharge. There should be no interference with spawning, breeding, feeding or nursery areas of aquatic fauna because of the small area in the aquatic ecosystem that could be affected by discharge activities, and the timing of the work in late winter. There would be no bioaccumulation of contaminants or sporadic releases of contaminants into the water column. There would also be no significant secondary effects on any food sources for predators in the area.

FINDING OF COMPLIANCE
FOR
CHATHAM (STAGE) HARBOR
MAINTENANCE DREDGING

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. A detailed discussion of the rationale for selection of the proposed plan can be found in the Environmental Assessment. Use of an open water disposal site or a landfill site would have resulted in significantly increased costs.

3. The proposed discharge would not violate any applicable State water quality standards. The Toxic Effluent Standards of Section 307 of the Clean Water Act would not be violated.

4. The proposed discharge would not harm any species listed as endangered under the Endangered Species Act of 1973. Use of the selected disposal site would not impact critical habitat or violate protective measures as designated under the Marine Protection Research and Sanctuaries Act of 1972.

5. The proposed discharge would not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife and special aquatic sites. The life stages of aquatic life and other wildlife would not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values would not occur.

6. Appropriate steps to minimize potential adverse impacts of the discharge on the aquatic system include cessation of disposal activities during extreme weather conditions and extreme tidal velocities.

7. On the basis of the guidelines the proposed disposal site for the discharge of dredged material is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

Statement

The proposed site for the placement of dredge material at Harding Beach in Chatham, Massachusetts has been specified through the application of Section 404(b) Guidelines.

The project files and Federal regulations were reviewed to properly evaluate the objectives of Section 404(b) of Public Law 92-500, as amended. Based on information presented in this Section 404 Evaluation, I find the project would not result in unacceptable impacts to the environment.

11 JAN '84
DATE

CARL B. SCIPLE
Colonel, Corps of Engineers
Division Engineer

In view of the above consideration, it appears unlikely that dredging of the federal channel and disposal of material on Harding Beach would affect any significant historic or prehistoric archaeological resources.

We would appreciate receiving your concurrence with this determination in a timely manner, so that we may award a contract for the dredging in February, 1984.

Sincerely,

Joseph L. Ignazio
Chief, Planning Division

Enclosure

cc: Mr. Wilson
Ms. Brown ✓
Mr. Sullivan, Nav. Br., Ops.
Plng Div File
Reading File

COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

December 2, 1983

Carl Boutilier
Chief, Navigation Branch
Operations Division
424 Trapelo Road
Waltham, Massachusetts 02254

Re: Consistency Determination

Dear Mr. Boutilier:

The Massachusetts Coastal Zone Management Office has completed its review of the proposed Chatham (Stage) Harbor maintenance dredging and we agree with your determination and find the proposed action consistent with the CZM Program Policies.

Thank you for your continued cooperation.

Sincerely,

Richard F. Delaney
Director

RFD:sla

cc: Michael Hornbrook, Waterways
Dan Sullivan, Corps of Engineers

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254

December 2, 1983

REPLY TO
ATTENTION OF:

Navigation Branch, Operations Division

Mr. Richard F. Delaney
Director, Coastal Zone Management
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02201

Dear Mr. Delaney:

This is in reply to your November 22, 1983 letter concerning our proposed maintenance dredging of the Chatham(Stage) Harbor channel.

Enclosed are copies of a representative cross-section of the nourished beach and Drawing No. CM 93, Sheet No. 3 of 3. The grass line indicated on the drawing is the top of the natural berm. Comparison of the elevation of the top of the berm with the elevation of the beach below the berm shows the natural berm to be adequate; thus we are deleting our earlier proposal to create a temporary berm. The sand will be pumped from the approximate location of the Mean High Water line.

We have revised the timing for the proposed dredging to allow for the earliest possible completion of the work. The schedule calls for commencing work on or about 1 March, 1984 and completing work by 30 April 1984. This will be reflected in the contract specifications. Every effort will be made to adhere to the schedule. I have discussed with Jeff Benoit the fact that potential delay factors, such as weather and sea conditions, can impact dredging operations and entitle a contractor to additional time. The possibility exists that attaining the objective in terms of restoring access to the harbor will necessitate work beyond the 30 April date we have agreed upon as a target. I believe this possibility merits consideration in your review.

This letter will be hand carried to your office on 2 December in the interest of avoiding unnecessary delay. Please contact Daniel Sullivan or me at 647-8351 if you should have any questions.

Sincerely,

C.G. Boutilier
Chief, Navigation Branch

Encl as

CC: Ms. Susan Brown, I.A.B., Planning Div.

The Commonwealth of Massachusetts

Division of Fisheries and Wildlife

Field Headquarters, Westboro 01581

25 November, 1983

TO: Tern Workshop Participants

FR: Bradford G. Blodget, Assistant Director, NG&ES

RE: Tern and Piping Plover Inventory Data for 1983

Roseate Tern experienced the most dramatic change in 1983, dropping 24 percent from 1,986 pairs in 1982 to 1,502 pairs in 1983, the lowest number of pairs recorded since 1977 when 1,322 pairs were recorded. Nesting occurred at five (5) stations in 1983 (v. 9 in 1982 and 5 in 1981). Ninety-three (93) percent of the Roseate Tern population in Massachusetts was concentrated at Bird Island, Marion.

The Arctic Tern picture continued to deteriorate badly in 1983, with a fifth straight year of decline from the 53 pairs recorded in 1978. Only 18 pairs were located at five (5) stations, the lowest number of pairs in memory. The factor(s) responsible for the Arctic Tern's difficulties remain unclear.

On a brighter note, Common Tern numbers rose to 7,909 pairs at 20 stations in 1983, a record number of pairs since these records began in 1974. These results compared with 7,577 pairs at 22 stations in 1982 and were achieved despite a continued decline at the Monomoy colony. There were four (4) colonies in excess of 1,000 pairs: New Island (1,450 prs.), Plymouth Beach (1,450 prs.), Monomoy (1,300 prs.) and Gray's Beach (1,280 prs.).

Least Tern results indicated a continuing upward trend with numbers of pairs at their highest level in history at 1,112 pairs. The previous record was 1,040+ set in 1980. 1983 results exceeded those of 1982 by 300 pairs. Least Terns were established at 33 stations with five (5) colonies containing 100 or more pairs. These were at Eastville Beach, M.V. (100 prs.), Nauset Heights (100 prs.), Nashawena Island (110 prs.), Low Beach, Nantucket (343 prs.) and North Beach, Chatham (698 prs.).

Piping Plover data were collected incidental to tern colony census activities and are hence probably quite conservative for the state as a whole. Seventy (70) pairs were reported from 33 stations. As an interesting comparison, 16 pairs were located in Connecticut (data from J. Zickefoose) and 11 pairs in Rhode Island (data from C. Raithel, Rhode Island Natural Heritage Program) in 1983.

The diligence and interest of each and every person and organization that has been involved in protecting Massachusetts terns over the last decade I am convinced has made a difference. Without the volunteer dedication of time and energies, I believe we would be in much worse shape than we are today.

It is my hope that some of the new revenues we expect from the new tax return checkoff program for nongame wildlife will eventually trickle-down to directly benefit our tern populations.

MASSACHUSETTS TERN INVENTORY
1983

The following data represent best estimates of populations of the four species of breeding terns present in 1983. In addition, an informal tally of nesting pairs of Piping Plover is included. Piping Plover figures were obtained mainly incidental to tern censusing and therefore do not represent a dedicated effort to census the plovers. Estimates of terns are for the period June 1-20. The abbreviation "P" indicates that birds were known or believed to have been present but census data are unavailable for the location. All numbers represent pairs.

No.	Colony	Least	Common	Roseate	Arctic	PP
0	Salisbury					
1	Woodbridge Is., Newburyport		188			
2	Crane's Beach, Ipswich					2+
3a	Plum Island Marsh area		40			
3b	Plum Island Refuge	22				1+
4	Plum Island State Park, Ipswich	60	3			2
5	Milk Island, Rockport					
6	Tinker's Island, Salem		125			
7	Snake Island, Winthrop					1
8	Hog Island, Hull		250[1]			
9	Third Cliff, Scituate	P				2
10	Fourth Cliff, Scituate	55				2
11	Duxbury Beach, Duxbury					
12	Plymouth Beach, Plymouth	59	1,450	35	8	2
13	Bird Island, Marion		720	1,400		
14	Ram Island, Mattapoisett					
15	Fairhaven area					
16a	Barney's Joy, Dartmouth	35				1
16b	Salter's Point, Dartmouth	no report				
16c	Gooseberry Neck, Dartmouth	no report				
17a	South Cape Beach, Mashpee	30				
17b	Washburn Island, Falmouth					
17c	Popponesset Beach, Falmouth					
18	Old Harbor Beach, N. Sandwich	27				2
19	Scorton Creek, Sandwich	15				1
20	Dead Neck-Sampson's I., Barnstable	62	250	10		2+
21a	Craigville Beach, Barnstable					
21b	Long Beach, Barnstable	45	50			2
22	Kalmus Beach, Barnstable	2				
23	Sandy Neck, Barnstable	15+				8+
24	Gray's Beach, W. Yarmouth		1,280	45		2
25	West Dennis Beach, Dennis	50	200			2
26	Monomoy Wilderness, Chatham[2]		1,300		2	5
27a	Harding's Beach, Chatham					
→27b	Harding's Beach Point, Chatham	(25)				(1)
27c	North Beach, Chatham	698	1			1+

[1] figure includes 130 prs. at Long Island pier + 120 prs. at Hog Island pier

[2] also 900 prs. of Laughing Gulls

No.	Colony	Least	Common	Roseate	Arctic	PP
28a	Nauset Heights, Orleans	100				1
28b	Nauset Spit, Eastham	27	2			5
29	New Island, Eastham & Orleans[3]		1,450	12	6	1
30	Marconi Station, Wellfleet	12				1
31a	Jeremy Point, Wellfleet	no report				
31b	Great Island, Wellfleet	no report				
32a	Pamet area, Truro	30				
32b	Pilgrim Beach, Truro					1
33a	High Head area, Truro	28				
33b	Outer Beach, Provincetown (Exit 9 to Race Point)	29				6
34	Wood End Light area, Provincetown					
35	Long Point, Provincetown					
36a	Nashawena Island, Gosnold	110	170			2
36b	Penikese Island, Gosnold					
36c	Cuttyhunk Island, Gosnold					
36d	Pasque Island, Gosnold	12				2
37	Noman's Land, Chilmark, M.V.	1	150		1	
38a	Nantucket Wildlife Refuge					
38b	Coskata-Coatue W.R., Nantucket	30				3
38c	Coatue Wildlife Ref., Nantucket					
39	Quidnet, Nantucket					
40a	Siasconset, Nantucket	4				1
40b	Cisco Beach, Nantucket					
40c	Eel Point, Nantucket					1
40d	Quaise Point, Nantucket					
40e	Tom Never's Head, Nantucket					
40f	Surfside, Nantucket					
40g	Nantucket (other)	344[4]			1	3
41a	Tuckernuck Island					
41b	Muskeget Island					1
41c	Whale Island					1
42	Chappaquidick Island, M.V.	35				
43	Tashmoo Spit, M.V.	44				
44	Cape Pogue W.R., M.V.					2
45	Sarson's Inlet area, M.V.		230			
46	Norton's Point (Katama), M.V.	6[5]				
47	Martha's Vineyard (other)	100[5]	50[6]			
	TOTAL PAIRS:	2,112+	7,909	1,502	18	70+
	TOTAL COLONIES/SITES:	33	20	5	5	33

[3] also 30 prs. of Laughing Gulls

[4] 343 prs. at Low Beach

[5] Eastville Beach

[6] Menemsha Pond

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. BOX 1518
CONCORD, NEW HAMPSHIRE 03301

Mr. V. L. Andreliunas
New England Division
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254

NOV 2 9 1983

Dear Mr. Andreliunas:

This supplements our November 3, 1983 letter concerning maintenance dredging of Chatham (Stage) Harbor Federal Navigation Channel, Chatham, Massachusetts.

We recently learned of two additional natural resource concerns that could be adversely impacted by the proposed project. These concerns relate to the reproductive functions (breeding, nesting and brood rearing) of the Least tern (Sterna albifrons) and Piping plover (Charadrius melodus). The Fish and Wildlife Service has listed both birds as National Species of Special Emphasis (NSSE). Certain populations of each species are currently under review for threatened or endangered status.

Both species utilize the Harding Beach area for these critical reproductive functions. The Piping plover normally returns in late March-early April. Nesting activity usually begins in mid-late April for this species. The Least tern follows the same general pattern, but about two weeks later than the plovers. The Piping plovers preferred habitat is the high beach area. They may nest near but not in areas dominated by dune grass. The Least terns have been nesting on the old spoil mounds and sand blow-out areas which are generally further back from the high beach zone.

Our principal concern with the dredging proposal is the April-May time frame when the work is to be performed. The proposed work schedule conflicts with the nesting season for both species. Therefore, we recommend that the dredging operation be scheduled for a March-April 10 time frame or rescheduled for the fall period of October-December.

Aside from the time-of-year conflict discussed above, some benefit could accrue to the Piping plover if the disposal operation results

in a net increase in high beach area. We are most interested in achieving both benefits from this Federal activity, i.e. safe guarding the reproductive functions for the living resources described in our letters and possibly increasing the amount of suitable habitat for these avian species.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor
New England Field Office

COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

November 22, 1983

Carl Boutilier
Chief, Navigation Branch
Operations Division
424 Trapelo Road
Waltham, MA 02254

Re: CZM Consistency Review: Chatham (Stage) Harbor, Maintenance Dredging

Dear Mr. Boutilier:

I am writing to inform you that this office has received the topographic survey of the Harding Beach, Chatham, disposal site that was requested on November 14, 1983. Unfortunately, it does not include either the location of the proposed berm, or, a representative cross-section of the nourished beach. Both of these items were also requested in the November 14th letter. A recent conversation with Mr. Daniel Sullivan of your staff has suggested that the construction of a berm might not be necessary because the natural berm would be adequate. If that is your official position, it must be clearly indicated as a project change in writing to this office. I would also ask that the representative cross-section be forwarded to this office as soon as possible.

In addition, the Massachusetts Natural Heritage Program has indicated that Harding Beach is a documented Least Tern nesting area and that disposal of dredged material should not occur after May 1, 1984. Policy 1 of the MCZM Plan clearly states our responsibility to protect ecologically significant resource areas for their value as natural habitats. Therefore, MCZM will require a written commitment that the disposal of dredged material will be completed prior to May 1, 1984.

Finally, because this office has not received the information previously requested and due to the receipt of the attached comments concerning Tern nesting, the review period for this project will be extended until December 5, 1983. If the required information is not received by this date, we will be unable to complete our review and we will be forced to disagree with your determination, based on lack of information and

conflict with Policy 1 of the Massachusetts Coastal Zone Management Plan. Please do not hesitate to contact Jeff Benoit of my staff if you have any questions about the comments in this letter.

Sincerely,

Richard F. Delaney
Director

RFD:JB:bam
attach:
cc: Dan Sullivan, COE
Chatham Conservation Commission
John J. Clarke, CCPEDC

CONSERVATION
EDUCATION
RESEARCH

MASSACHUSETTS AUDUBON SOCIETY
LINCOLN, MASSACHUSETTS 01773 • TEL. 617-259-9500

November 18, 1983

Mr. Carl B. Scriple, Colonel
Division Engineer - Corps of Engineers
424 Trapelo Road
Waltham, MA 02154
Attn: Navigation Branch

RE: Maintenance dredging of Chatham Harbor federal navigation channel, Chatham, MA.

Dear Mr. Scriple,

In accordance with the provisions of Section 404 of the Clean Water Act (PL 92-500), comments are hereby submitted on the above-referenced federal dredging project.

The proposed project will remove approximately 75,000 cubic yards of sand from the entrance channel into Chatham Harbor. The dredge material will be disposed of hydraulically onto Harding Beach, below mean high tide.

The Massachusetts Audubon Society recognizes the need for maintenance dredging in this area. However, more information is needed to examine dredge disposal alternatives and associated environmental impacts. For instance, it appears from the Corps map (Sept. 30, 1980) that the predominant direction of littoral drift will carry the dredged sand back into the channel area where shoaling presently exists. Perhaps there are more appropriate dredge disposal sites. In addition, the timing of the dredging activity may interfere with flounder breeding or shorebird nesting (particularly plovers).

The public notice does not contain enough information to conclude that the proposed activity will not result in any significant environmental impacts. Thus, the environmental assessment for this project should document littoral drift and examine impacts of dredge disposal.

Thank you for the opportunity to comment on this project. We look forward to reviewing the environmental assessment, and hope that the above concerns will be addressed.

Sincerely,

Arleen O'Donnell
Director of Environmental Affairs

cc: Bob Prescott
Wellfleet Bay Sanctuary Director

AOD/rf

COASTAL ZONE
MANAGEMENT

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

November 14, 1983

Carl Boutilier
Chief, Navigation Branch
Operations Division
424 Trapelo Road
Waltham, Massachusetts 02154

RE: CZM Consistency Review: Chatham (Stage)
Harbor Maintenance Dredging

Dear Mr. Boutilier:

As per my recent telephone discussion with Dr. Dan Sullivan of your staff, I am formally requesting that the following information be submitted to our Office so that we may complete our review in a timely manner.

Please submit the following:

1) predisposal topographic survey of the Harding Beach disposal site;

2) delineation on the survey plan of the approximate location, size and configuration of the containment dike (berm); and,

3) cross-section of the beach after disposal.

Sincerely,

Jeff Benoit
Coastal Geologist

JB:sla

cc: Chatham Conservation Commission
Daniel Sullivan, COE

November 10, 1983

FROM: Hardings Shores Association, Incorporated
c/o Mr. Neil W. Driscoll
182 Indian Hill Road
Carlisle, MA 01741

TO: Mr. Carl Boutilier, Chief of Navigation
Navigation Branch
Army Corps of Engineers
424 Trapelo Road
Waltham, MA 02154

RE: Chatham (Stage Harbor Dredging Project)

Dear Mr. Boutileir:

It is my understanding that the Army Corps of Engineers is undertaking a dredging maintenance project for the entrance to Stage Harbor. The Hardings Shores Association is a corporation representing the owners of the Hardings Shores Community, which community directly abuts to the west the Harding Public Beach. Our Association has previously installed a network of groins to stabilize the beach area with respect to the Bucks Creek entrance. Our consultant is Mr. Arthur Vulgaropulis (894-7666), 26 Tudor Street, Waltham, MA. It is my understanding that Mr. Vulgaropulis was originally involved in the plans several years ago for dredging the Stage Harbor entrance.

It is our belief that the sand removal from the Stage Harbor entrance should be transported westerly to the area of Cockle Cove due primarily because of:

- The significant erosion having taken place over the past two years at Cockle Cove and Ridgevale Beach and

- The prevailing Westerly to Easterly currents in the area.

By putting the sand in this area, we believe the maximum utilization of such fill will take place in terms of beach build-up and retention. I have asked Mr. Vulgaropulis to contact you to discuss his insights into the project and I would appreciate your discussing it with him. If any additional hearings on the matter

take place, I would appreciate being notified. I might also add that I would suggest dredging not take place during the period June 15 to September 15 if at all possible. To the extent that sand must be transported by or across the Hardings Shore beachfront, perhaps we could purchase some of this sand thereby reducing some of the costs.

Very truly yours,
For Hardings Shores Association

Neil W. Driscoll

Neil W. Driscoll
Treasurer

NWD:CPP

cc Mr. Arthur Vulgaropulis

Massachusetts Natural Heritage Program

November 8, 1983

Carl B. Sciple, Division Engineer
Army Corps of Engineers
424 Trapelo Rd.
Waltham, MA 02154

Re: Disposal area for proposed Chatham Harbor navigational channel maintenance dredging.

Dear Mr. Sciple:

The Massachusetts Natural Heritage Program has reviewed the Public Notice for proposed maintenance dredging of the Chatham (Stage) Harbor federal navigation channel (no NEDOD #, dated 14 October 1983). We would like to comment on the disposal of spoil at Harding Beach.

As you may know, Harding Beach and Harding Beach Point have provided habitat for Tern Colonies for a number of years, and are checked annually as part of the Division of Fisheries and Wildlife's Tern Census and Inventory. In June 1983, 25 pairs of the rare Least Terns (Sterna antillarum were counted at Harding Beach, with some on previously disposed spoil material Later in the season, these birds moved to other locations, including Harding Beach Point across the channel. While it is clear that the presence of the spoil does not in itself deter the terns and, in fact, provides valuable nesting substrate, active disposal of dredge should not occur during the breeding season to avoid disturbing the establishment to nests or the rearing of young terns. Therefore, the best time to perform dredge disposal at the Harding Beach site, is between September and May 1.

I hope this is useful to you, and that you will contact us if further information is necessary. Please note that the MNHP inventory of rare flora and fauna in the state expands through ongoing field work and research, so that further data on the area may become available in the future. I have enclosed a Program User's Guide to provide details about our program.

Yours sincerely,

Alison Sanders-Fleming

Alison Sanders-Fleming
Environmental Reviewer

ASF:phb
Enc

CC: Brad Blodget, MDFW
Marianne Connally, Coastal Zone Management

Division of Fisheries and Wildlife
~~Department of Environmental Management~~ 100 Cambridge Street, Boston, Mass. 02202 (617) 727-3

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
P.O. BOX 1518
CONCORD, NEW HAMPSHIRE 03301

Mr. V. L. Andreliunas
New England Division
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254

NOV 3 1983

Dear Mr. Andreliunas:

This is in response to your letter of September 26, 1983, and the Public Notice, dated October 14, 1983, regarding the maintenance dredging of Chatham (Stage) Harbor Federal Navigation Channel, Chatham, Massachusetts.

This is the report of the Department of the Interior and the Fish and Wildlife Service, submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

The proposed project involves hydraulically dredging approximately 75,000 cubic yards of sand and gravel from a 2.1 mile stretch of the Chatham (Stage) Harbor. The channel is to be maintained at 10 feet deep and 150 feet wide. The dredged material is to be pumped via pipeline to a section of Harding Beach, west of the harbor entrance and used for beach nourishment. According to your September 26 letter, the work will be performed in April and May of 1984.

We have contacted the Refuge Manager for Monomoy National Wildlife Refuge and discussed the project. We have concluded from our review of the project that there should be no adverse ecological impacts from the proposed work. The predominantly coarse to medium sand will be hydraulically dredged and should not create any turbidity problems. In addition, the work is to be done in April and May, avoiding the shellfish spawning season. Therefore, we have no objection to the project as proposed.

Should additional coordination be required, please contact Gene Crouch (FTS 834-4797) of my staff.

Sincerely yours,

Gordon E. Beckett

Gordon E. Beckett
Supervisor
New England Field Office

RE: Chatham (Stage) Harbor Maintenance Dredging

On 24 October 1983 I received a telephone call from Sue Mello, Nat. Marine Fisheries who stated they have no problems with the proposed work and she refered to a May, 1983 letter from Nat. Marine Fisheries listing a number of projects which they have no problems with including Chatham (Stage) Harbor

Dan Sullivan

ANTHONY D. CORTESE, Sc. D.
Commissioner

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Water Pollution Control
One Winter Street, Boston 02108

October 20, 1983

Carl G. Boutilier
Chief, Navigation Branch
Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Re: Water Quality Certification
Maintenance Dredge
Chatham (Stage) Harbor
Chatham

Dear Mr. Boutilier:

In response to your letter dated September 30, 1983, this Division has reviewed your application for a permit to do maintenance dredging within the Stage Harbor Entrance Channel in the Town of Chatham, MA. Approximately 75,000 cubic yards of medium to fine sand will be removed hydraulically from the 2700' long section of channel, to return the channel to its authorized dimensions. The material will be pumped via pipeline onto Harding Beach for nourishment. The proposed dredging is scheduled to take place in April and May of 1984.

In accordance with the provisions of Section 401 of the Federal Water Pollution Control Act as amended (Public Law 95-217), this Division issues the following Water Quality Certification relative to this project, subject to the following conditions:

1. The dredging portion of the project could result in a violation of water quality standards adopted by this Division. Therefore, reasonable care and diligence shall be taken by the contractor to assure that the proposed activity will be conducted in a manner which will minimize violations of said standards.

2. The proposed dredging timetable, April and May 1984, shall be adhered to, so as to avoid impacts on the shellfish population.

3. Effluent from the diked disposal area shall drain into Nantucket Sound.

Should any violation of the water quality standards or the terms of this certification occur as a result of the proposed activity, the Division will direct that the condition be corrected. Non-compliance on the part of the permittee will be cause for this Division to recommend the revocation of the permit(s) issued therefor or to take such other action as is authorized by the General Laws of the Commonwealth. This certification does not relieve the applicant of the duty to comply with any other statutes or regulations.

Very truly yours,

Thomas C. McMahon
Director

TCM/DBS/wp

cc: Anthony D. Cortese, Sc.D., Commissioner, Department of Environmental Quality Engineering, One Winter Street, Boston, MA 02108
William Lawless, Chief, Permits Branch, Corps of Engineers, 424 Trapelo Road, Waltham, MA 02154
John J. Hannon, Director, Division of Waterways, Department of Environmental Quality Engineering, One Winter Street, Boston, MA 02108
Richard Cronin, Director, Division of Fisheries & Wildlife, 100 Cambridge Street, Boston, MA 02202
Philip Coates, Director, Division of Marine Fisheries, 100 Cambridge Street, Boston, MA 02202
Harriet Diamond, Coastal Zone Management, 100 Cambridge Street, Boston, MA 02202
Douglas Thompson, Permits Section, EPA Region I, John F. Kennedy Building, Boston, MA 02203

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J. F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

October 18, 1983

V. L. Andreliunas, Chief
Operations Division
Navigation Branch
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, MA 02254

Dear Mr. Andreliunas:

We do not expect any adverse effects from the proposed maintenance dredging in the Chatham (Stage) Harbor Federal navigation project in Chatham, Massachusetts.

According to the information you provided in your letter of September 26, 1983, the medium to fine sand should be acceptable for beach nourishment at Harding Beach. The April and May 1984 dredging schedule should avoid any adverse impacts on spawning shellfish which normally occurs between June 30 and September 15 each year. The diking of the disposal area should avoid impacting existing dune grass located nearby.

During the dredging operation, if unexpectedly some of the materials turn out to be unsuitable for beach nourishment (for example, silty muds) alternate upland disposal should be utilized for the unsuitable materials.

In the hydraulic dredging of the Parkers River in Yarmouth, Massachusetts, this October, some of the materials placed on Seagull Beach consisted of black silty muds with clumps of peat like material. This material doesn't blend in well with the existing sand and similar incidents should be avoided.

If there are any changes in project plans and for further coordination, please call Edward Reiner of my staff at FTS 223-5470.

Sincerely,

Walter Newman, Acting Chief
Environmental Evaluation Section

cc: USFWS, Concord, NH
NMFS, Gloucester, MA
MA DWPC, Attn: Judy Purdue
MA CZM, Attn: Jack Clarke
MA DEQE, Division of Waterways
MA Division of Marine Fisheries, Sandwich, MA